


# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0000055059/PP	<b>FOR FURTHER ACTION</b>		See Form PCT/PEA416
International application No. PCT/EP2004/011024	International filing date (day/month/year) 02.10.2004	Priority date (day/month/year) 11.11.2003	
International Patent Classification (IPC) or national classification and IPC A01N51/00			
Applicant BASF AKTIENGESELLSCHAFT et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 2 sheets, as follows:</p> <p style="margin-left: 40px;"><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input checked="" type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand  03.08.2005		Date of completion of this report  07.03.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer  Marie, G  Telephone No. +49 89 2399-2571	



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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/011024

AP2004REG-EP-PTO 09 MAY 2005

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - ☐ international search (under Rules 12.3 and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4)
    - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

### Description, Pages

1-15 as originally filed

### Claims, Numbers

1-9 received on 03.08.2005 with letter of 01.08.2005

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing (*specify*):
    - ☐ any table(s) related to sequence listing (*specify*):
  4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing (*specify*):
    - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/011024

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	-
Inventive step (IS)	Yes: Claims	2
	No: Claims	1,3-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	-

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

PCT/EP2004/011024

**Re Item V****Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

The documents to which this report refers are numbered in their order of appearance in the international search report.

**1. Novelty (Article 33(2) PCT)**

**D1** discloses the protection of substrates, such as paper, textiles, glue, wood, wood pulp, tanning liquors, leather, synthetic substances and lacquers, using *N*-alkyl or *N*-cycloalkyl-*N*-nitroso-hydroxylamines, in particular the copper salt of *N*'-hydroxy-*N*-cyclohexyldiazenium oxide (CuHDO), against fungi, in particular mould fungi, such as *Aspergillus niger*.

**D2** teaches the use of compositions comprising CuHDO for combatting algae, lichens or organisms that colonise solid articles under water or in moist air. The compositions may be formulated as paints, plasters, mastics or as solid films or sheets for covering and protecting sub-merged structures such as piers, cables, pipes, rooves or house facades.

None of cited documents disclose the use of CuHDO and a diluent in industrial materials and/or industrial processes for combatting and/or killing bacteria, mould, yeast and alga, wherein the composition has a pH of at least 4.

The subject-matter of at least claims 1-9 therefore appears to be novel.

**2. Inventive step (Article 33(3) PCT)**

Although **D1** and **D2** do not disclose the subject-matter of claim 1, there was no prejudice to overcome with regard to the pH value of the composition used in the present invention. Indeed, those documents teach the use of CuHDO in different technical substrates, most of them being either neutral or basic, and in natural aqueous environment where the pH value is necessarily greater than 4.

The argument provided by the Applicant who compares the foaming property of CuHDO with other microbicides, such as quaternary ammonium compounds, does

not support any non-obvious and/or surprising effect.

However, with regard to the subject-matter of claim 2, the technical problem identified by the Applicant and the solution provided by the subject-matter of claim 2, namely the in-situ preparation of CuHDO in order to avoid a blue coloration of the substrate, have never been suggested by the prior art.

For that reason, the subject-matter of claim 2 seems to involve an inventive step.

Dependent claims 3-9 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the EPC with respect to inventive step since said features are considered to be of normal design for the skilled artisan. Indeed, the addition of a optional active component (B) does not involve any non-obvious or surprising effect.

**3. Industrial applicability (Article 33(4) PCT)**

Industrial applicability of the present invention is acknowledged.

**Re Item VI**

**Certain documents cited**

**Certain published documents**

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (valid claim) (day/month/year)
WO 2004/030458	15.04.2004	25.09.2003	02.10.2002

**Re Item VII**

**Certain defects in the international application**

- 4.1** Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document **D1** is not mentioned in the description, nor is this document identified therein.

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

**PCT/EP2004/011024**

- 4.2 The sentence on *page 5, lines 16-17* is not correct (see item V.1.).
- 4.3 In the examples, a comparative solution containing 0.2% CuHDO is tested. This composition refers to an inexistent footnote (<sup>3</sup>).

## New Claims

1. Use, for combating and/or killing bacteria, mould, yeast, and algae in industrial materials and/or industrial processes of a composition comprising (A) a copper salt of N'-hydroxy-N-cyclohexyldiazonium oxide (CuHDO) and a diluent, wherein the composition has a pH of at least 4.
2. Use according to claim 1, wherein the CuHDO is generated in-situ within the application or medium using a water-soluble salt of N'-hydroxy-N-cyclohexyldiazonium oxide and a Cu-containing salt.
3. Use according to claims 1 or 2, wherein the composition additionally comprises another microbicidally active component (B) selected from: alcohols, isothiazolones, activated halogen compounds, formaldehyde release compounds, phenolic compounds, aldehydes, acids and esters, biphenyls, urea derivatives, O-acetals, O-formals, N-acetals, N-formals, benzamidines, phthalimides, pyridine derivatives, quaternary ammonium and phosphonium compounds, amines, amphoteric compounds, dithiocarbamates, compounds containing active oxygen and mixtures of any of these.
4. Use according to claims 1 or 2, wherein the other active component (B) is selected from at least one of 2-bromo-2-nitropropane-1,3-diol, 1,2-benzisothiazol-3(2H)-one, 1,3,5-tris-(2-hydroxyethyl)-1,3,5-hexahydrotriazine, 5-chloro-2-methyl-2H-isothiazol-3-one, 2-methyl-2H-isothiazol-3-one, tetrahydro-1,3,4,6-tetakis(hydroxymethyl)-imidazo[4,5-d]imidazole-2,5(2H,3H)-dione, 1,3-dimethyl-5,5-dimethylhydantoin and a polyvinylamine, IPBC, terbutryn, ziram, zineb, dichlofluanid, trichlofluanid, folpet, metal dihexa-2,4-dienoate, tebuconazole, 3-benzo(b)thien-2-yl-5,6-dihydro-1,4,2-oxathiazine-4-oxide, pyrithiones, thiram, cybutryne, MBT, carbendazim, diuron, chlorotoluron, fluorometuron, thiabendazole, metazachlor, CuSCN, or dicopper oxide.
5. Use according to claim 3 to 4, wherein the respective amounts of the components (A) and (B) in the composition, by weight of the total amount of (A) and (B), are (A) 1 to 99 wt% and (B) 1 to 99 wt%.
6. Use according to claim 3 to 4 wherein the said respective amounts of (A) and (B) are (A) 40 to 60 wt% and (B) 40 to 60 wt%.
7. Use according to any one of claims 1 to 6, in the form of a paste, emulsion or solution or suspension.

8. Use according to any of claims 1 to 7, wherein the composition has a pH of at least 7.
  9. Use according to any of claims 1 to 7, wherein the composition has a pH of at least of from 8 to 12.
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